6T10

Compactron Dissimilar Double Pentode

• QUADRATURE FM DETECTOR • HIGH B+ • AUDIO POWER PENTODE • 4.2 WATTS AUDIO OUTPUT

The 6T10 is a compactron containing a sharp-cutoff, dual-control pentode (Section 2) and a power pentode (Section 1). The dual-control pentode is designed for use as an FM detector and the power pentode as an audio-frequency output amplifier in television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3±0.6	Volts
Heater Current	0.95	Amperes

Direct Interelectrode Capacitances‡

Section 1

Grid-Number 1 to Plate: (1g1 to 1p)	0.22	pf
Input: 1g1 to (h + 1k + 1g2 + b.p. + 2k + i.s.)	11	pf
Output: 1p to (h + 1k + 1g2 + b.p. + 2k + i.s.)	10	pf

Section 2

Grid-Number 1 to Plate: (2g1 to 2p)	0.032	pf
Grid-Number 3 to Plate: (2g3 to 2p)	3.0	pf
Grid-Number 1 to All Except Plate: 2g1 to (h + 2k + 2g2 + 2g3 + i.s.)	6.5	pf
Grid-Number 3 to All: 2g3 to (h + 2k + 2g1 + 2g2 + 2p + i.s.)	7.5	pf
Grid-Number 1 to Grid-Number 3: (2g1 to 2g3)	0.12	pf

Coupling

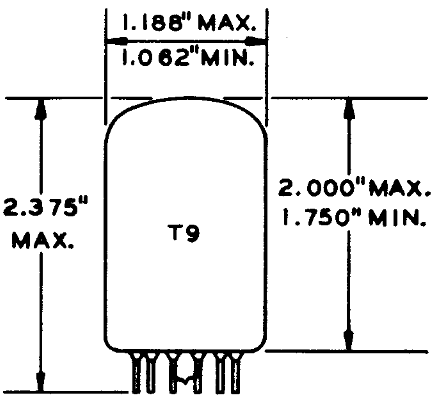
Plate, Section 1 to Plate, Section 2: (1p to 2p)	0.13	pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - E12-70, Button 12-Pin
Outline Drawing - EIA 9-58

Maximum Diameter	1.188	Inches
Minimum Diameter	1.062	Inches
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches
Minimum Seated Height	1.750	Inches

PHYSICAL DIMENSIONS

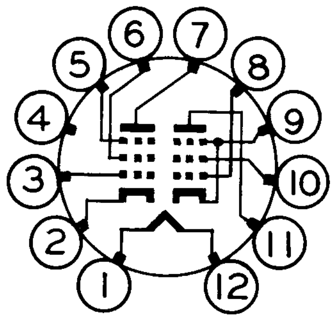


EIA 9-58

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Cathode and Internal Shield (Section 2)
Pin 3 - Grid Number 1 (Section 2)
Pin 4 - No Connection
Pin 5 - Grid Number 3 (Suppressor) (Section 2)
Pin 6 - Grid Number 2 (Screen) (Section 2)
Pin 7 - Plate (Section 2)
Pin 8 - Grid Number 1 (Section 1)
Pin 9 - Cathode and Beam Plates (Section 1)
Pin 10 - Grid Number 2 (Screen) (Section 1)
Pin 11 - Plate (Section 1)
Pin 12 - Heater

BASING DIAGRAM



EIA 12EZ

Supersedes Pages 1 and 2 of 6T10 D and R Sheet dated 12-63

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Section 1

Plate Voltage	275	Volts
Screen Voltage	275	Volts
Plate Dissipation	10	Watts
Screen Dissipation	2.0	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.25	Megohms
With Cathode Bias	0.5	Megohms

Section 2

Plate Voltage	330	Volts
Suppressor Voltage	28	Volts
Screen Supply Voltage	330	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	1.7	Watts
Screen Dissipation	1.1	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER

Section 1

Plate Voltage	250	Volts
Screen Voltage	250	Volts
Grid-Number 1 Voltage	-8.0	Volts
Peak AF Grid-Number 1 Voltage	8.0	Volts
Plate Resistance, approximate	10000	Ohms
Transconductance	6500	Micromhos
Zero-Signal Plate Current	35	Milliamperes
Maximum-Signal Plate Current	39	Milliamperes
Zero-Signal Screen Current	2.5	Milliamperes
Maximum-Signal Screen Current	7.0	Milliamperes
Load Resistance	5000	Ohms
Total Harmonic Distortion, approximate	10	Percent
Maximum-Signal Power Output	4.2	Watts

CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

AVERAGE CHARACTERISTICS

Section 2

Plate Voltage	150	Volts
Suppressor Voltage	0	Volts
Screen Voltage	100	Volts
Cathode-Bias Resistor	560	Ohms
Plate Resistance, approximate	0.15	Megohms
Grid-Number 1 Transconductance	1000	Micromhos
Grid-Number 3 Transconductance	400	Micromhos
Plate Current	1.3	Milliamperes
Screen Current	2.1	Milliamperes
Grid-Number 1 Voltage, approximate		
Ib = 30 Microamperes	-4.5	Volts
Grid-Number 3 Voltage, approximate		
Ib = 50 Microamperes	-4.5	Volts

NOTES

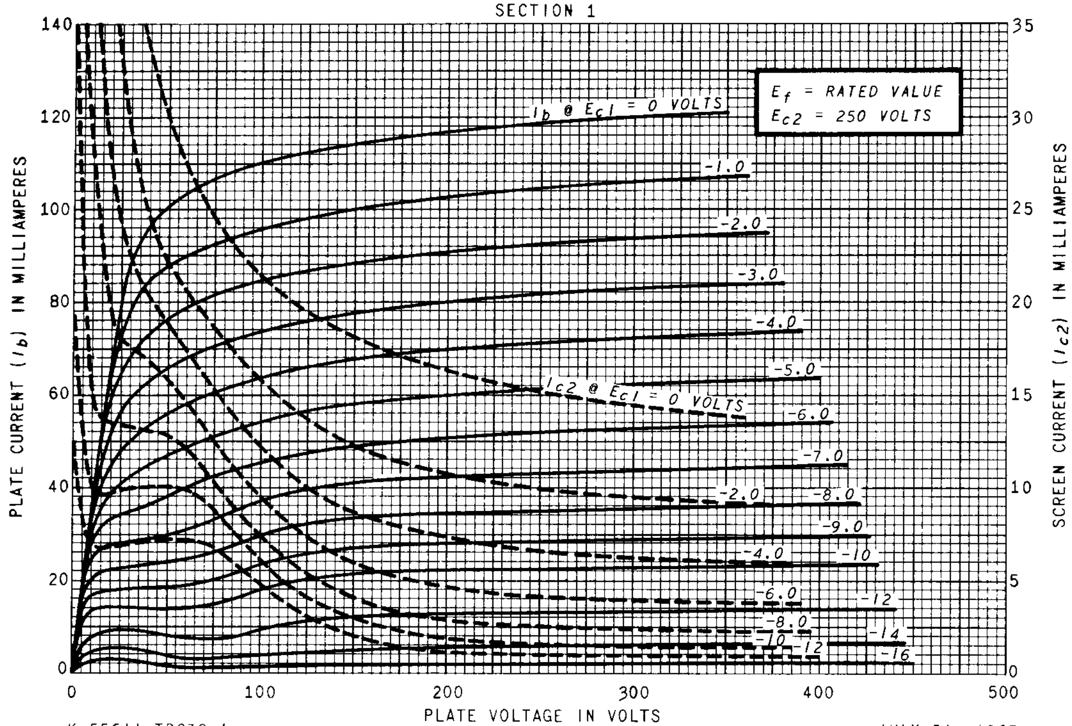
* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

† Heater current of a bogey tube at Ef = 6.3 volts.

‡ Without external shield.

AVERAGE PLATE CHARACTERISTICS

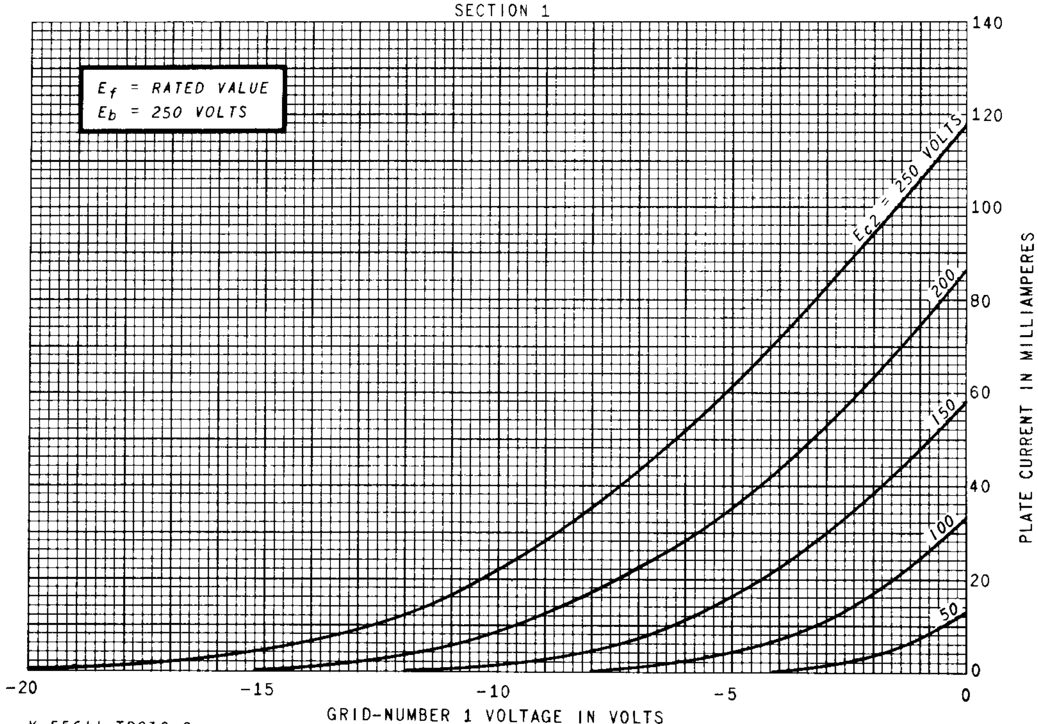
SECTION 1



K-55611-TD232-1 JULY 31, 1963

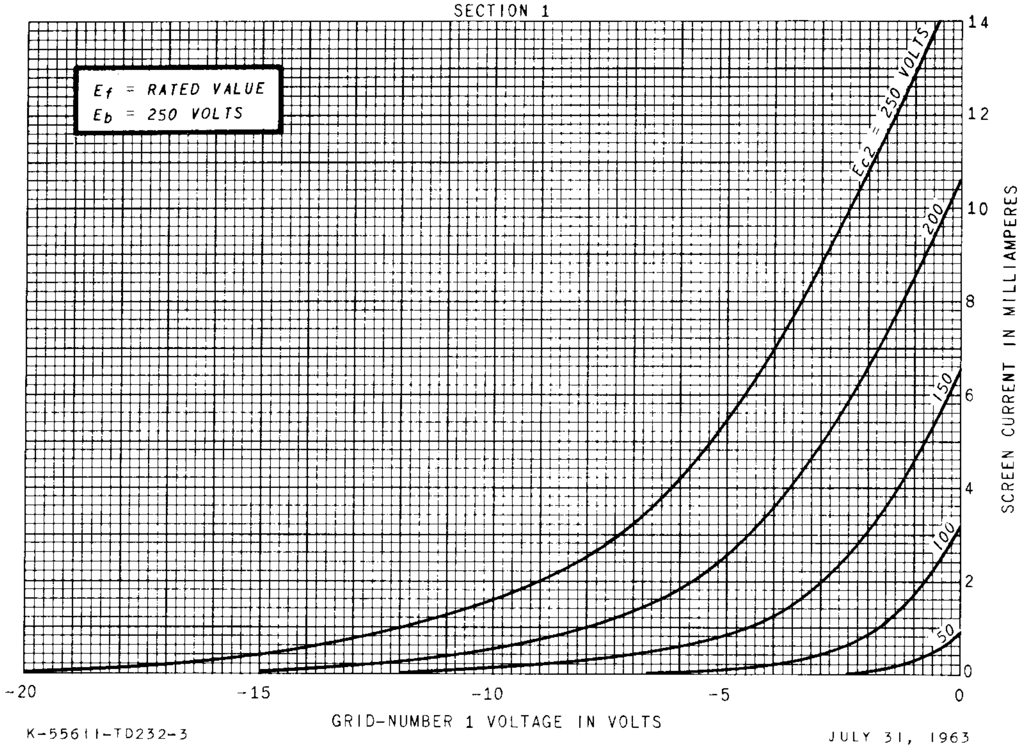
AVERAGE TRANSFER CHARACTERISTICS

SECTION 1

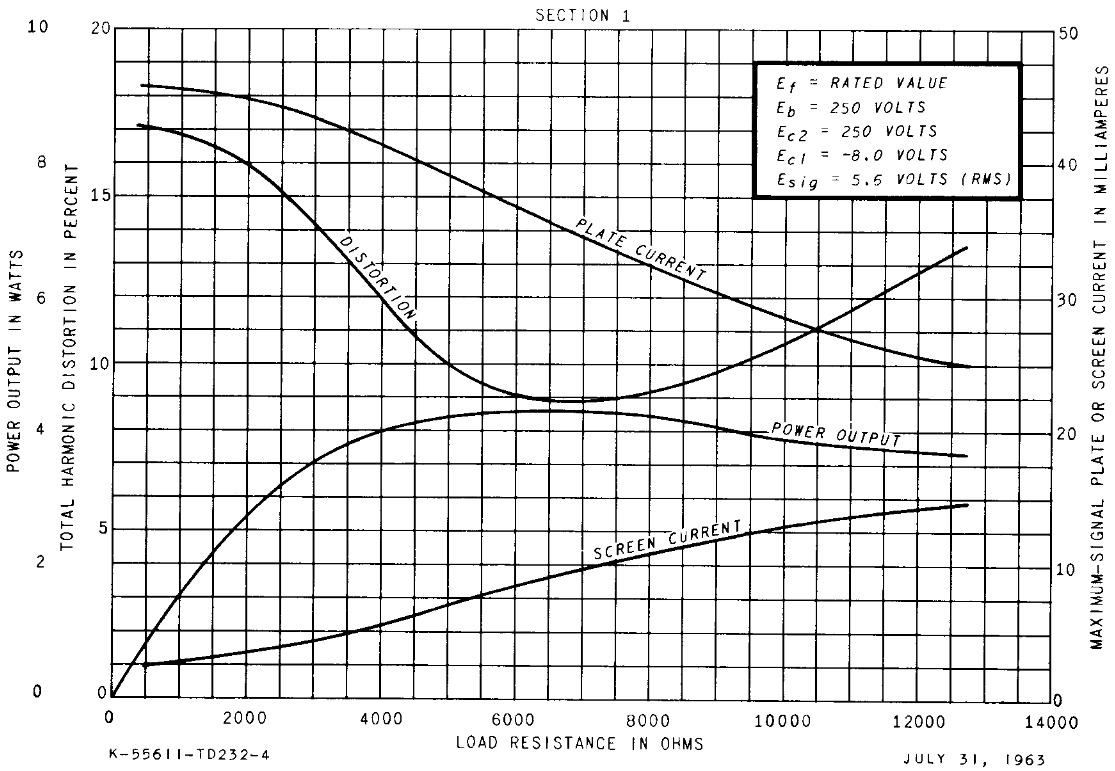


K-55611-TD232-2 JULY 31, 1963

AVERAGE TRANSFER CHARACTERISTICS

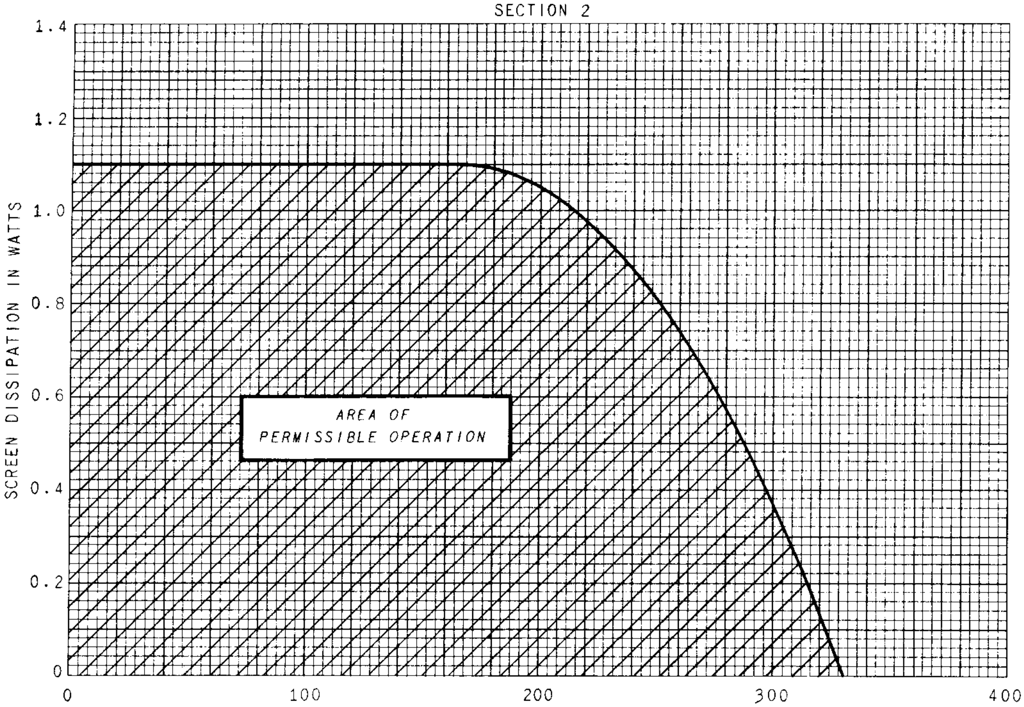


OPERATION CHARACTERISTICS



SCREEN RATING CHART

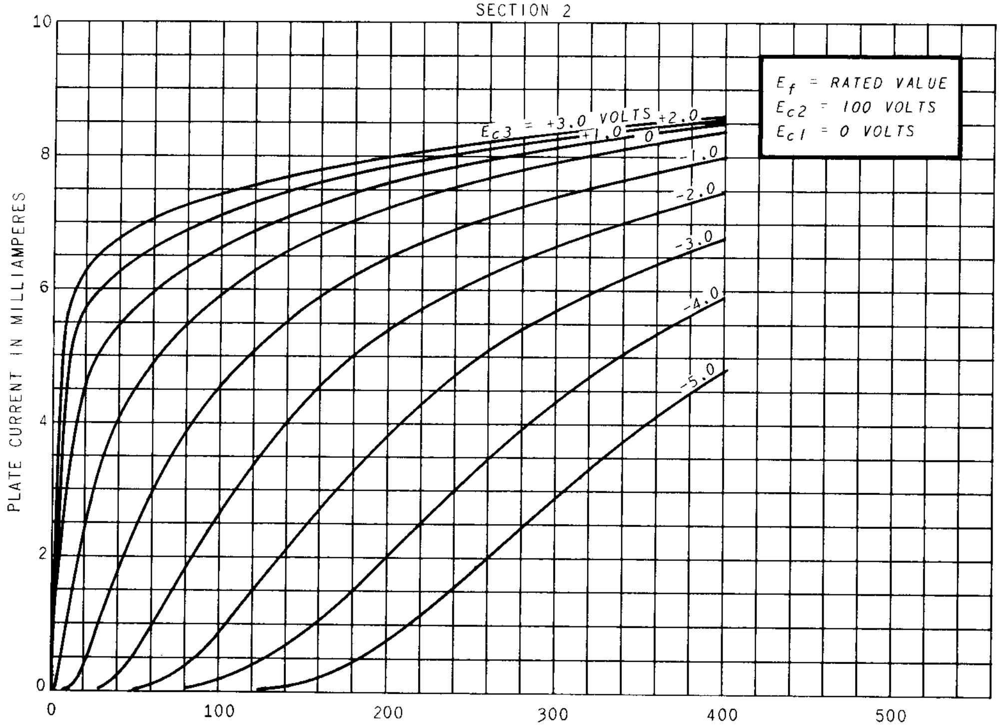
SECTION 2



K-55611-TD228-5 JUNE 19, 1963

AVERAGE PLATE CHARACTERISTICS

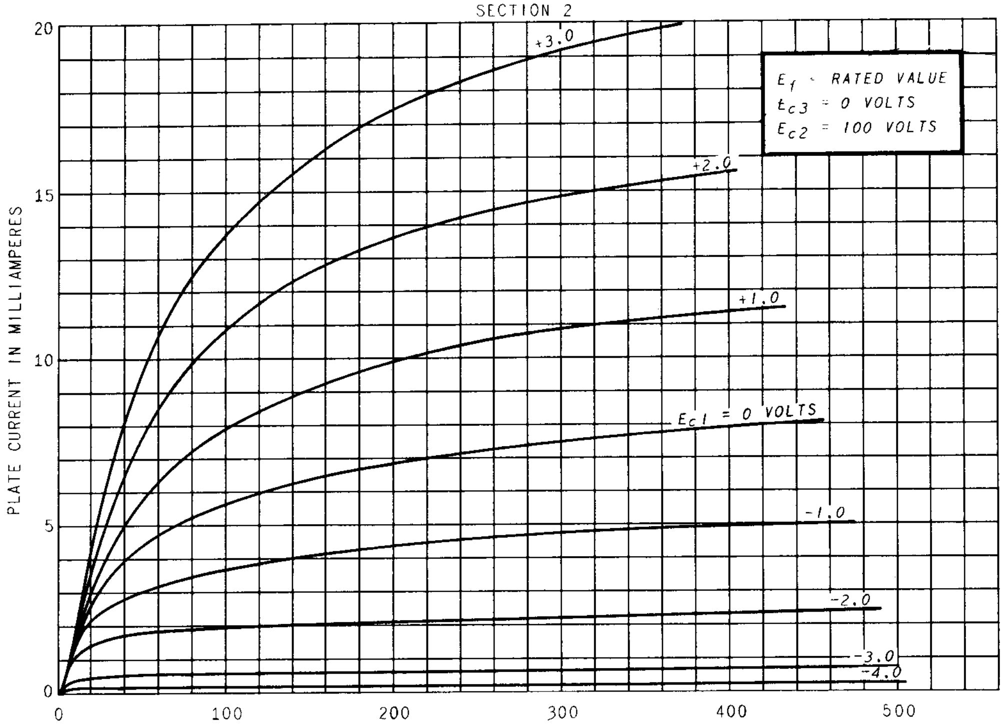
SECTION 2



K-55611-TD228-6 JUNE 19, 1963

AVERAGE PLATE CHARACTERISTICS

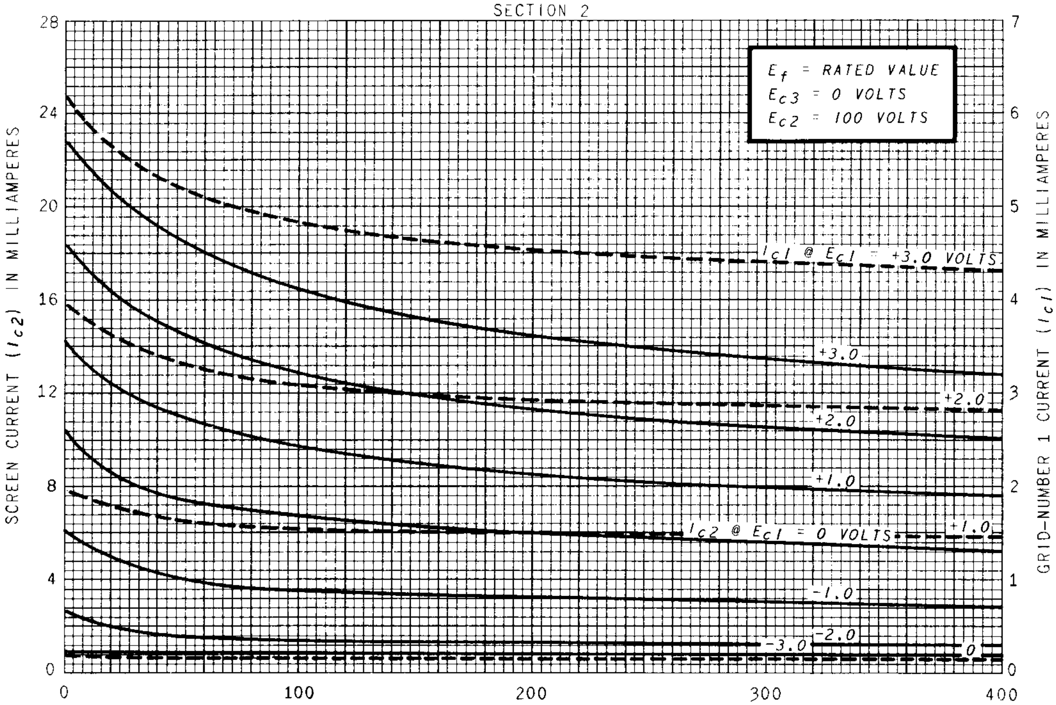
SECTION 2



K-55611-TD228-7 JUNE 19, 1963

AVERAGE CHARACTERISTICS

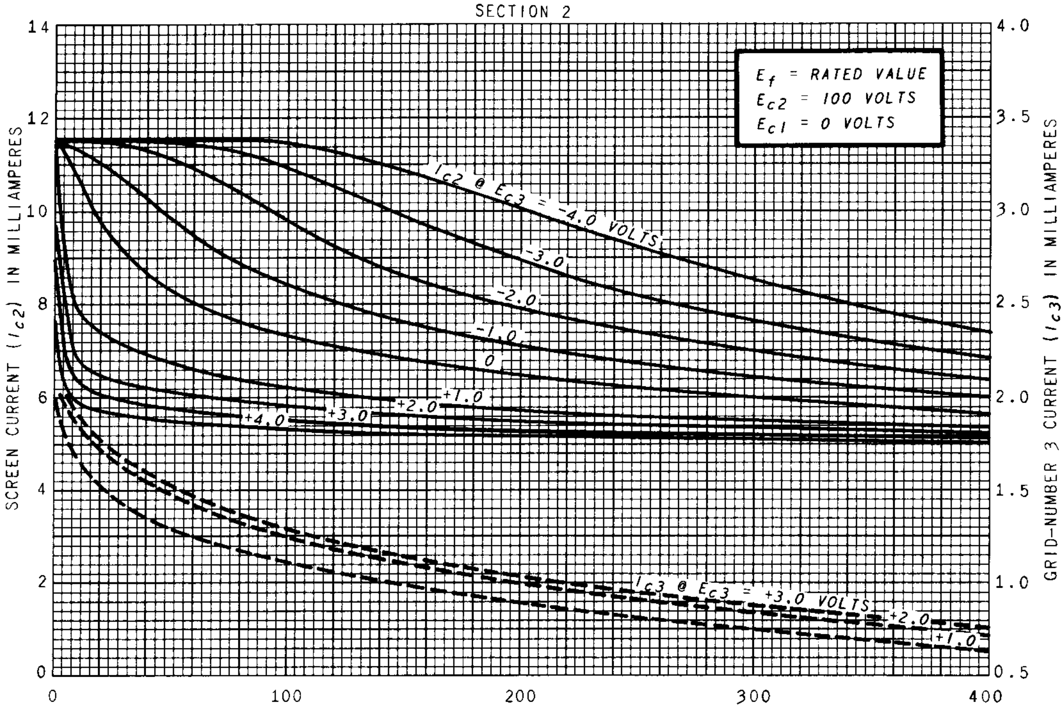
SECTION 2



K-55611-TD228-8 JUNE 19, 1963

AVERAGE CHARACTERISTICS

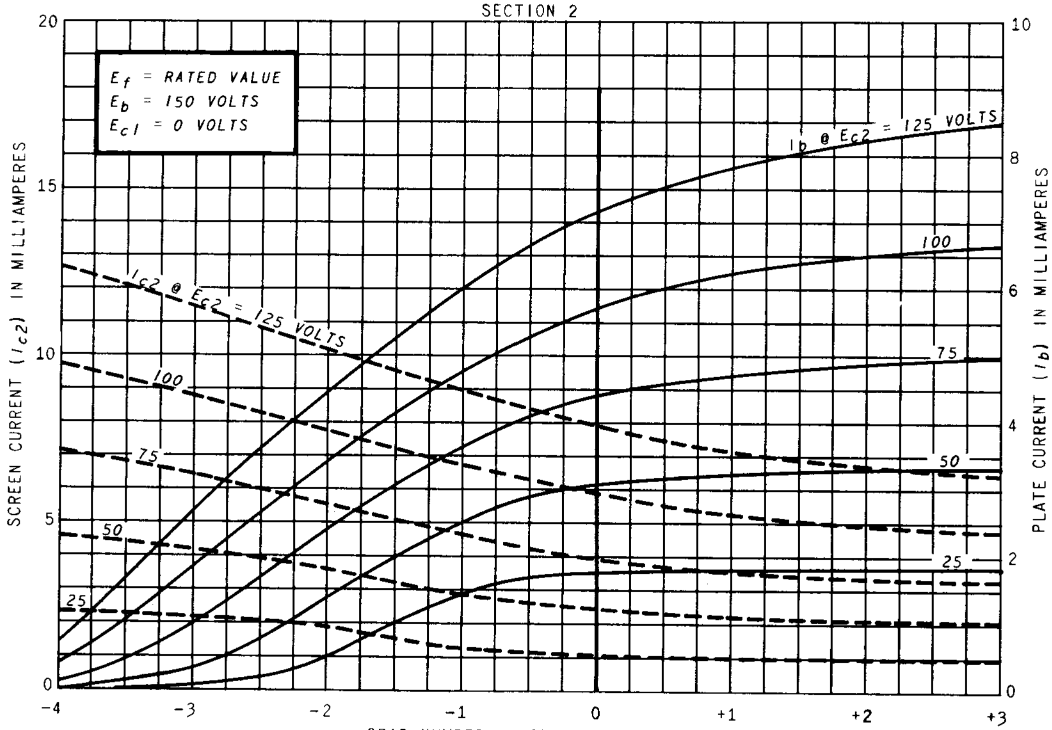
SECTION 2



K-55611-TD228-9 JUNE 19, 1963

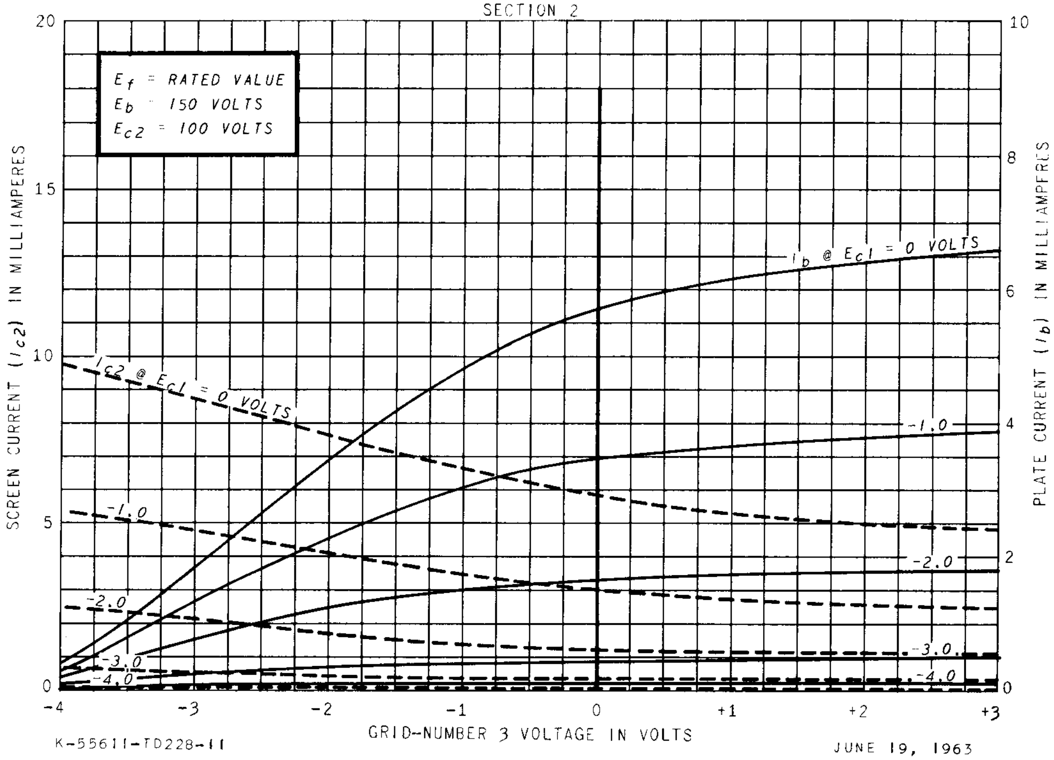
AVERAGE TRANSFER CHARACTERISTICS

SECTION 2

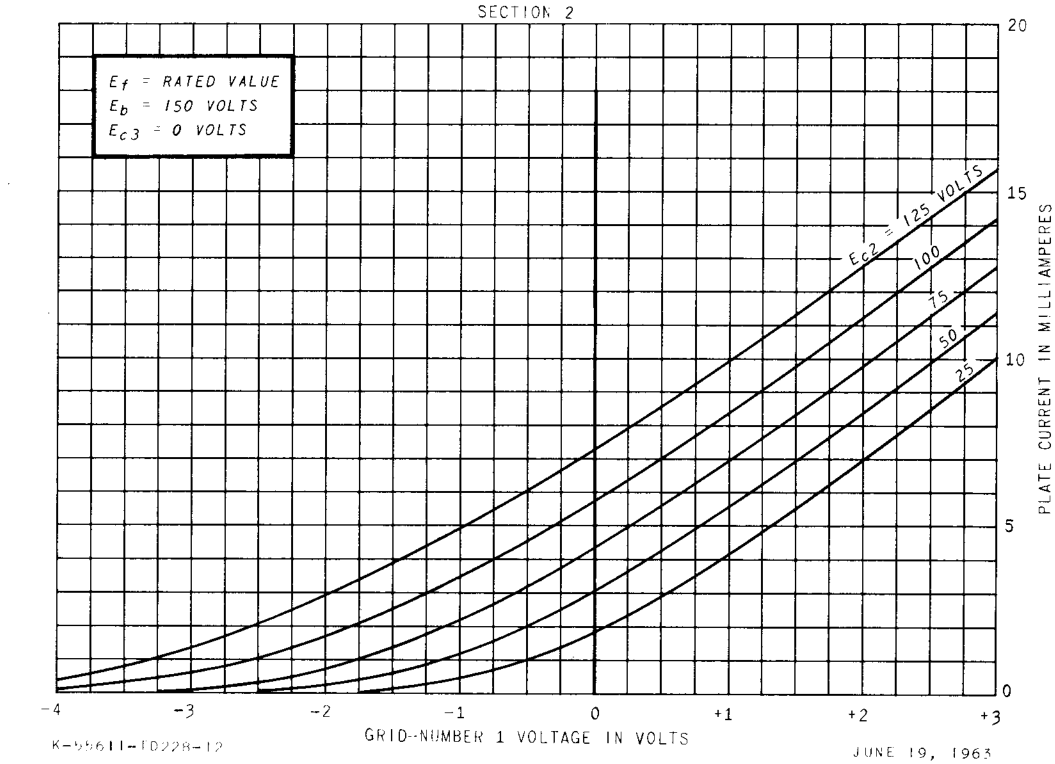


K-55611-TD228-10 JUNE 19, 1963

AVERAGE TRANSFER CHARACTERISTICS

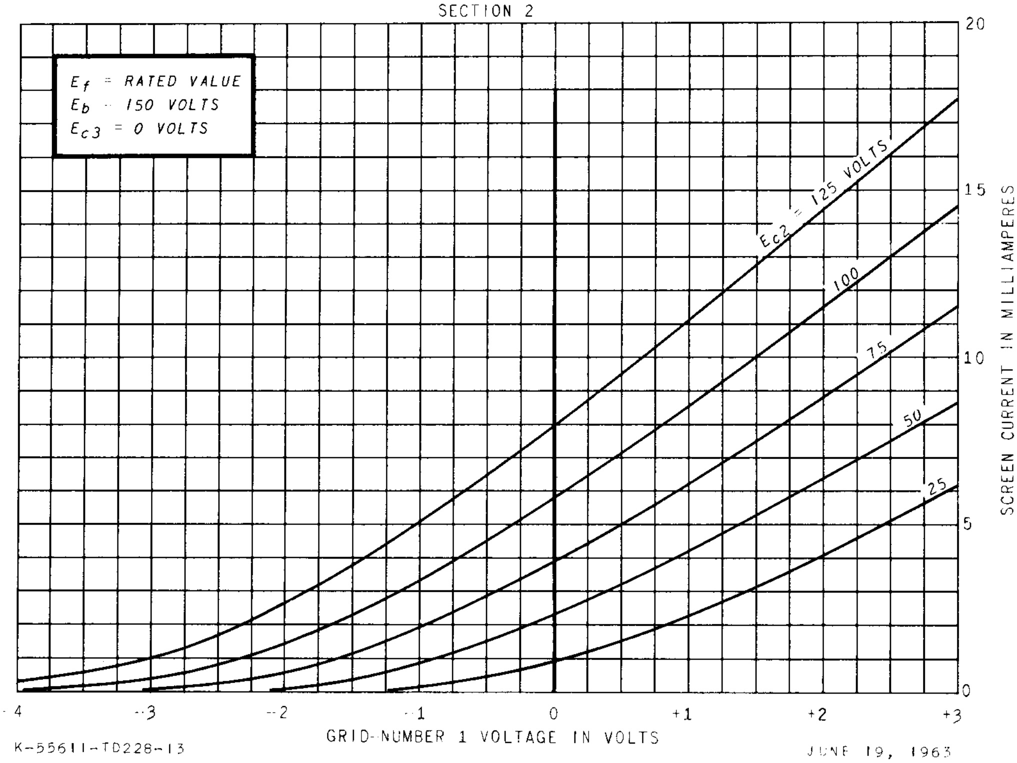


AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

SECTION 2



TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky